

age of current between sub-pixels and/or IR drop and reduce perceivable artifacts such as banding, color inaccuracies, edge effects, etc.

[0073] The specific embodiments described above have been shown by way of example, and it should be understood that these embodiments may be susceptible to various modifications and alternative forms. It should be further understood that the claims are not intended to be limited to the particular forms disclosed, but rather to cover all modifications, equivalents, and alternatives falling within the spirit and scope of this disclosure.

What is claimed is:

1. An electronic device comprising:  
an electronic display comprising a plurality of pixels and configured to display an image based at least in part on processed image data, wherein each of the plurality of pixels comprises a plurality of sub-pixels; and  
image processing circuitry configured to:  
receive first image data for a sub-pixel of the plurality of sub-pixels and second image data for a group of sub-pixels of the plurality of sub-pixels surrounding the sub-pixel, wherein the first image data comprises a luminance value for the sub-pixel, and wherein the second image data comprises luminance values for each sub-pixel of the group of sub-pixels surrounding the sub-pixel; and  
determine a compensation value for the luminance value of the sub-pixel based at least in part on the luminance value of the sub-pixel and the luminance values for each sub-pixel of the group of sub-pixels surrounding the sub-pixel, wherein the compensation value is configured to compensate the luminance value for lateral current leakage between the sub-pixel and the group of sub-pixels.
2. The electronic device of claim 1, wherein the image processing circuitry is configured to model the lateral current leakage between the sub-pixel and the group of sub-pixels as a plurality of leakage paths, wherein each leakage path of the plurality of leakage paths is associated with the sub-pixel and one sub-pixel of the group of sub-pixels.
3. The electronic device of claim 2, wherein the lateral current leakage for a leakage path of the plurality of leakage paths varies based at least in part on a sub-pixel type of the sub-pixel and the sub-pixel type of the one sub-pixel of the group of sub-pixels associated with the leakage path.
4. The electronic device of claim 3, wherein the sub-pixel type comprises a color component of the sub-pixel.
5. The electronic device of claim 1, wherein determining the compensation value for the luminance value of the sub-pixel comprises determining a plurality of correction values, wherein each correction value is associated with a corresponding leakage path between the sub-pixel and one sub-pixel of the group of sub-pixels.
6. The electronic device of claim 5, wherein determining a correction value of the plurality of correction values comprises applying a lookup table based on the luminance value of the sub-pixel and a corresponding luminance value of the one sub-pixel of the group of sub-pixels.
7. The electronic device of claim 6, wherein the lookup table is identified based on a sub-pixel type of the sub-pixel and the sub-pixel type of the one sub-pixel of the group of sub-pixels.
8. The electronic device of claim 6, wherein a first lookup table is applied to a first leakage path comprising the

sub-pixel and a first sub-pixel of the group of sub-pixels and a second lookup table is applied to a second leakage path comprising the sub-pixel and a second sub-pixel, wherein in response to the first sub-pixel being a different color component from the second sub-pixel, the first lookup table is different from the second lookup table.

9. The electronic device of claim 6, wherein determining the compensation value for the luminance value of the sub-pixel comprises summing each of the plurality of correction values and the luminance value of the sub-pixel.

10. The electronic device of claim 1, wherein the image processing circuitry comprises a plurality of lookup tables, wherein the image processing circuitry is configured to:

select a lookup table of the plurality of lookup tables based at least in part on a sub-pixel type of the sub-pixel; and

apply the selected lookup table to generate a correction value based at least in part on the luminance value of the sub-pixel and a second luminance value of one sub-pixel of the group of sub-pixels, wherein the compensation value comprises a combination of the correction value and the luminance value of the sub-pixel.

11. A method comprising:

determining, via image processing circuitry, a first sub-pixel type and a first luminance value of a first sub-pixel;

determining, via the image processing circuitry, a second sub-pixel type and a second luminance value of a second sub-pixel;

determining, via the image processing circuitry, a correction value, associated with lateral current leakage between the first sub-pixel and the second sub-pixel, for the first sub-pixel based at least in part on the first sub-pixel type, the second sub-pixel type, the first luminance value, and the second luminance value; and  
generating, via the image processing circuitry, a compensated luminance value for the first sub-pixel by combining the correction value with the first luminance value.

12. The method of claim 11, wherein determining the correction value comprises:

identifying a lookup table based at least in part on the first sub-pixel type and the second sub-pixel type; and

applying the identified lookup table to generate the correction value based at least in part on the first luminance value and the second luminance value.

13. The method of claim 12, comprising generating the lookup table based at least in part on a temperature associated with the first sub-pixel.

14. The method of claim 11, comprising:

determining, via the image processing circuitry, a third sub-pixel type and a third luminance value of a third sub-pixel; and

determining, via the image processing circuitry, a second correction value, associated with lateral current leakage between the first sub-pixel and the third sub-pixel, for the first sub-pixel based on the first sub-pixel type, the third sub-pixel type, the first luminance value, and the third luminance value, wherein generating the compensated luminance value comprises combining the first luminance value with the correction value and the second correction value.